NOTES ON EUXOA CINEREA, SCHIFF.

By A. J. Wightman, F.R.E.S.

It is often assumed that all British *cinerea* are correctly classed as belonging to race *tephrina*, Staudinger. *Cat. Lep. Pal.*, III, 148, 1901. "Minor. al. ant. angustioribus distinctius signatis, al. post. in ♂ albidioribus."

Mr H. J. Turner, *Brit. Noct. and Vars. Supp.*, Vol. II, page 92, accepts that British *cinerea* are in fact a distinct race, on the ground of colour and markings, and suggests that the race name is *tephrina*, Stdgr.

But one of the main characters of this race (*tephrina*) is small size, and while there certainly are British localities in which the species is normally very small, there are many others in which the average size of the specimens is quite equal to that of typical *cinerea* on the Continent. Which seems to rule out the name *tephrina* as the name of the British race and restrict it to examples of small size from areas where small size is normal.

The variation in *cinerea* is so great both in colour and markings and individual forms of striking appearance are so numerous that I feel that the giving of names to even the more extreme forms can serve little purpose and so refrain from naming any of those which are described in these notes. But I have no objection to their being named if anyone wishes to do so.

The material, from which the insects described are taken, has been collected during the last twenty years in the counties of Kent, Sussex, and Hants.

The higher downs seem to be the favourite breeding grounds, but they also occur in shingle beach areas. A flat hill top or shallow valley high on the downs is better than a hillside. The males come freely to light and less freely to sugar; the females are seldom taken except by searching, although they do come to both light and sugar upon occasion.

This species, unlike most Noctuae, can be taken in really bred condition at light. This is due to several facts. The light is taken to the breeding ground, the locale is free from high vegetation among which the species can get damaged upon its short flight to the lamp. It comes to light often on its first flight when wings are hardly dry, and can be boxed without being netted (which last is fatal).

I have found that a sheet placed flat, or as flatly as possible, on the turf with the light in the centre is better than a rigged-up perpendicular sheet. It should be weighted with lead shot at the edges to prevent it flopping about in the ever-present cold stiff breeze one encounters in the higher downlands at night.

The flight of the males is from dusk to near dawn, but usually within certain definite periods. Some nights they come early, and then after an interval again appear about 11.20 p.m., and yet again just before 1 a.m., Summer Time.

After a wet day early comers are mostly wrecks, while just before midnight fine specimens appear, from which I surmise that early comers are last and previous nights' emergences, while those coming later on are fresh emergences.

The females emerge the hour before midnight and I think the males, at light just before midnight, are on the mating flight, but have failed to find mates. Those coming just before 1 p.m. have paired. There is no hard and fast rule, of course, and the weather conditions are very important—fog is hopeless, moonlight nearly as bad, temperatures below 48° F. nearly hopeless, but rain in slight showers after a dry day is not at all bad. The ideal conditions are a dark and sultry night, following a reasonably dry day, no moon, and thunder desired if without a downpour.

When the flight is on, the moths appear from the dark and drop straight on the sheet (6 feet square), rest a second, with wings vibrating, and then run towards the light.

These first moments are the chance for boxing, for once the moth reaches the shadow of the lamp it will climb on it or fly about it and make boxing difficult and quickly suffer damage. Once they come, they come often, several at a time, and quick boxing is important.

It is wise to at once sort moths into two piles of boxes—wanted and not wanted—so that those rejected can be released quickly should the weather compel a sudden start for home, for if thrown out at once they come again and again to be boxed.

I doubt these moths coming far to the light, having noted that when several lights are worked and placed 200-300 yards apart, all being visible at once from the high ground, it is the same lamp, night after night, which makes the largest capture. This presumably is because it is nearest to the spot in which emergences are taking place.

Cinerea is very plentiful indeed in its haunts, and although definitely local to special pieces of ground, there are endless spots for it. It emerges from mid May to mid June and from first to last the nightly emergence in a normal locality must be several dozens, and when emergence is at peak well over 100 may come to a well-placed lamp, mostly quite fresh, but only if the weather is "right."

The ground colour of insects for any given locality is usually wide in range. But, nevertheless, there are brownish areas, silver grey areas, and reddish areas, by which it is not meant that all specimens from such an area are of that colour group, but that the bulk are. The ground colour varies from almost white, greyish-white, silver grey, dove grey, blue grey, lavender grey, purplish grey, pale slate grey, deep smoky grey to black, which I call the grey group; and from pinkish grey, palest cafe-au-lait, palest yellow brown, pale red brown, rusty brown, deep brown, to brown so deep as to appear black in most lights. This I call the brown group. Some of these ground colour shades are scarce.

The usual form has uniform ground colour with distinct markings in deeper shade of same basic colour.

These markings consist of basal line, inner line, central shade, outer line, sub-marginal line, and a row of dots along the outer margin; the reniform is present and sharply defined.

There are endless minor differences between examples, apart from ground colour.

Markings in general may be little darker than ground colour or very much darker. The sub-marginal in some examples is very dark and

thick, like a wavy band; while in others it is line-like and sharply toothed; the reniform may be just a dot or a large spot.

The orbicular is present in a fair percentage of specimens, while there may be a dark line along the inner margin or outer margin.

The central shade in some cases is lineal and in others wide and much suffused. It may be reddish on a grey ground colour, and I have examples in which it is confined to the lower half of wing.

Another point, which is worth recording, is the occasional presence of lanceolate marks from the sub-marginal to the outer margin.

All the foregoing points, while small in themselves, create a very large number of forms which appear rather different one from another.

The more striking forms are usually produced by one or more areas of the wing being darker than the rest of the wing. These banded forms occur from the palest ground colours to the brown and slate grey shades. In these darker shades the contrast is not great.

(a) Dark band occupies area sub-marginal to outer margin.
(b) Dark band occupies area outer line to sub-marginal.
(c) Dark band occupies central shade to outer line.
(d) Dark band occupies inner line to central shade.
(e) Dark band occupies central shade to outer margin.
(f) Dark band occupies whole outer area.
(g) Dark band occupies whole central area.

The above have a single, if in some, extensive darkened area. The following have two such areas separated by pale ground colour:—

(h) Dark basal and outer line to sub-marginal areas.
(i) Dark basal and central shade to outer marginal areas.
(j) Dark basal and outer areas.

I have never taken one with dark basal area only, but such must occur.

All these banded forms have many minor varieties apart from ground colour.

The dark areas may be little deeper in colour than the rest of wing or may be in very strong contrast to it.

The dark area may be solid looking and smooth in appearance or reticulated and peppered with a rough appearance.

In the deep ground colour examples deep brown, black brown, slate and black, these banded insects do occur but the bands can only be seen in certain lights when the insect is viewed obliquely and are not apparent in the cabinet. Unicolorous forms occur in these deep shades, in which no markings are to be seen, but more often the central shade is to be traced (except in the black ones), and in many examples the transverse lines have a pale edging, so that the insect appears to be lined in pale whitish grey or silver grey and the outer half of basal area is also sometimes suffused with whitish grey.

With all the differences in marking which occur and the multiplication of these forms by the wide colour variation, this species must be able to run any other British Noctua close for the title of most variable.

Tutt was not well supplied with material for his notes. He says (*Brit. Noc. and Vars.*, II, 76) British examples lack the orbicular which Hübner mentions as present in his description, but, as I have said, this

is often present. He also says " Central shade is ' always ' reddish." It is, in fact, " often " so.

Turner (*Brit. Noc. and Vars. Supplement*, Vol. II, page 91) says " I have not seen an *obscura* male." But this dark black or black-brown nearly unicolorous form occurs in very small numbers in all localities I have worked at all well.

I have pairs, ♂ and ♀, of a great many forms, both light and dark, and feel quite certain that, while males are usually much paler in shade than females, both sexes occur in all forms and shades, pale-grey ♀♀ being about as scarce as black-brown ♂♂.

A FEW ORTHOPTERA NEAR WORTHING.

By Malcolm Burr, D.Sc., F.R.E.S.

Worthing enjoys such a reputation for sunshine, to which it lived up this year, that I hoped to find a good representative set of Orthoptera in the district on the few occasions that I have had a chance of getting into the field. But probably because I was not able to give the time to the work, I was rather disappointed.

I had expected to find *Chorthippus albomarginatus* all along the coast, where there is still a little grass left between the houses, but actually came across it only in the flats at the mouth of the Adur at Shoreham. These are usually under water, I believe, in winter, or at least apt to be flooded. Another species that I expected to find was *Platycleis grisea*, which can survive in a built-up area, such as now exists all along the coast, almost without a break from Littlehampton to Seaford, as I used to see plenty of it on the cliff of the Leas at Folkestone. Neither did I happen to find the little coast cockroach, *Ectobius panzeri*.

On the Downs the usual grasshoppers were in evidence fairly early. *Omocestus viridulus* and *Chorthippus bicolor* were adult at High Salvington on 16th July, and on Cissbury Ring, a few days later. *Stenobothrus lineatus* was tolerably plentiful, with *Ch. parallelus* and the two mentioned. But grasshoppers were not really abundant anywhere. On the short turf inside the camp at Cissbury there is a small colony of *Myrmeleotettix maculatus* and another further towards the north-east, near Stubb's Bottom. It was very dark on some burnt ground. The other grasshoppers mentioned are generally distributed on the Downs. On 21st August, a bright sunny day with a strong sou'-west wind blowing, *S. lineatus* was taking short flights. Specimens disturbed by my feet would leap into the air and open their wings, always facing up wind, but they could not fly against it, and were always carried away down wind. That evening, in a sheltered corner, I came across *Asilus crabroniformis*. I watched it for a few minutes and left it apparently settled for the night under a big leaf.

On 24th August I snatched half-an-hour in the river flats by the estuary of the Adur, near Shoreham. There were plenty of *Ch. bicolor* in the rough grass and, on the football ground, *Ch. albomarginatus*, but most of the specimens were freshly emerged and still soft. Alongside